

Functional Medicine: A Holistic Treatment Approach to the Peaceful Healing Journey

Pushpanathan Muthuirulan, PhD

Research Associate

Department of Human Evolutionary Biology

Harvard University, FAS

55A, Peabody Museum, 11 Divinity Avenue,

Cambridge, MA

Tel: (301) 674-3108

Email: muthuirulanp@fas.harvard.edu

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Abstract

A critically important emphasis is placed today upon educating and informing all citizens of the realities and horizons of health and healthcare. One newer area of scientific inquiry in healthcare is that of functional medicine. This article provides a general introduction to functional medicine, its impacts and its importance for improving health. This article also provides needed information regarding chronic diseases, and the potential that functional medicine has for health care cost reductions. Functional medicine is a personalized holistic healing approach that offers immeasurable value in treating a multitude of human health conditions. Functional medicine primarily focuses on the optimal functioning of patient body and organs rather than attacking diseases directly. In recent years, functional medicine practitioners are aiming to restore a patient's health from complex chronic diseases by spending time with patients, listening to their medical histories and understanding patients' genetic or environmental interactions and life style factors. This holistic healing approach takes into account biochemical individuality based on genetic and environmental uniqueness that supports the unique expression of health as positive vitality. Thus, functional medicine offers an effective and practical way of approaching healthcare that would successfully meet patients' health challenges and provide lifelong optimal health.

Keywords: Chronic disease; functional medicine; therapeutic partnership; holistic treatment; quality healthcare

Introduction

Chronic diseases are persistent or long-lasting health conditions that contribute to about 38 million deaths every year. Such diseases hinder independence and increase the potential of healthy individuals being made to suffer disabilities (WHO, 2014). Chronic diseases to humans include arthritis, asthma, cancer, heart disease, diabetes, stroke, viral diseases (Hepatitis, HIV) and chronic respiratory problems (e.g. COPD) that can lead to hospitalization, long-term disability, poor health related quality of life and often death. Certain chronic conditions occur together more frequently due to their high prevalence rates and have been linked with increased morbidity and mortality (Diederichs et al., 2010).

The term multiple chronic conditions (MCC) represents the presence of one or more chronic conditions in humans that emerged as a global public health threat affecting 1 in 3 of all adults and 2 in 3 of population ages 65 and above (Gerteis *et al.*, 2014). In the United States, ~ 25% of adults are suffering with at least two chronic conditions that can contribute to disease, disability, reduced physical activity and mental illness (Ward, 2016). In 2016, seven out of 10 deaths globally were caused by chronic illness, particularly cancer, cardiovascular diseases, chronic respiratory diseases and diabetes. Chronic diseases are known to cause half the deaths worldwide, 80% of which occur in low-income and middle-income countries (Nabel *et al.*, 2009).

In recent years, chronic disease medical epidemiologists are paying greater attention towards advancing the health of the public by fostering a research-based approach to the prevention and management of chronic diseases. The majority of United States (US) healthcare and economic costs associated with medical conditions are for the costs of chronic diseases and associated health risk behaviors. Nearly 84 % of total healthcare spending in 2006 was for 50% of the population who have one or more chronic medical conditions (CDC, 2014).

Although common and costly, most chronic diseases are preventable. Many chronic diseases have been associated with lifestyle choices that are within individuals' own hands to change. Eating nutritious food, physical exercise and avoiding tobacco can help individuals to better manage their illness, avoid complications and prolong their lives (Schmidt *et al.*, 2016). In addition, a patient's health and well being can also be improved by alternative medicine that would make significant differences to the power of existing therapies in treatment of chronic diseases.

What Causes Chronic Diseases?

The risk determinants of chronic diseases are well established and well known. A small set of modifiable risk factors are responsible for most chronic diseases in both men and women (WHO, 2014). For example, an unhealthy diet, physical inactivity and tobacco intake are some of the factors that emerge in modifiable intermediate risks such as increased blood pressure (hypertension), abnormal blood lipids (dyslipidaemia), elevated glucose levels (hyperglycemia), overweight gains and obesity. The major modifiable risk factors in strong association with non-modifiable risk areas (e.g. age and heredity) explain the major underlying causes for most chronic diseases, including heart diseases, stroke, chronic respiratory disorders and cancers. Other major risk factors have been identified that explain the remaining burden of chronic diseases. For example, alcohol use is the leading risk factor for global disease burden that can cause substantial health loss, but its relationship to chronic disease is highly complex (Griswold et al., 2018). Other risk factors for chronic diseases include infectious agents that lead to certain types of cervical

and liver cancer, and environmental factors (e.g., air pollution) that contribute to a wide range of chronic diseases ranging from asthma to chronic respiratory disorders. Besides these causes, other underlying determinants of chronic diseases are genetic factors, childhood risk, socioeconomic conditions, cultural change, ageing, poverty and psychosocial stress (WHO, 2014).

Consequences and Approaches to Manage Chronic Diseases

A rise in prevalence of chronic diseases not only affects a nation's health and health care systems, but also significantly increases healthcare costs. Nearly 70 % of US health care spending is used for the treatment of patients with one or more chronic diseases. The economic effects of chronic diseases extend beyond the healthcare costs spent on treatment procedures. Furthermore, the increasing incidence of chronic diseases reduces the economic productivity of a nation. For example, a groundbreaking study reported by Milken Institute showed that the annual impact on the US economy of chronic diseases is estimated to be more than \$1 trillion, which could increase to \$6 trillion by the middle of the century. The health catastrophe induced by chronic disease is also an underlying cause of poverty that hampers the economic development of a country (Nabel *et al.*, 2009).

Since, chronic disease is shortening our life expectancy, disrupting our quality of life, bankrupting governments and threatening the life of future generations, it is absolutely essential that the national and international public health communities make chronic disease prevention a worldwide priority. The most effective and resource-efficient long-term management of chronic diseases is one of the greatest health-related challenges facing people, health care professionals and society (McPhail *et al.*, 2016). The debilitating effects of chronic diseases can be prevented, delayed or mitigated. In general, half the deaths caused due to chronic diseases are preventable if the major underlying causes of the diseases are known. Several approaches are available to prevent and manage chronic diseases. Unfortunately, conventional medicine has failed to manage common chronic illness, which warrants a new alternative approach to healthcare that would more effectively tackle chronic disease challenges (Roy *et al.*, 2010).

There are two major reasons why conventional medicine has failed to address chronic disease prevalence. First, the application of conventional medicine to the modern problem of chronic diseases has led to a medical system that only suppresses disease symptoms with drugs rather than addressing the root cause of the problem. Second, the model of how quality health care is delivered to patients is also greatly problematic (Kresser, 2017, <https://kresserinstitute.com/two-reasons-conventional-medicine-will-never-solve-chronic-disease/>).

Unfortunately, our current medical system makes quality care to patients extremely difficult. For example, an average office visit of patients with a primary care provider is ~10 minutes. If a patient has multiple chronic disease conditions, it is almost impossible for the primary care physician to provide quality care to patients during this 10-minute visit. In order to truly address chronic disease challenges, we require a different model of delivering quality care to patients suffering with chronic illnesses. The new model of providing quality care should encourage practitioners to have longer visits with patients to understand patient medical history completely before prescribing drugs and to establish collaborative care. In this experience, doctors work with a patient as a “therapeutic partner” rather than the physician being a licensed “expert” to bring solutions to a patient's medical conditions.

What is Functional Medicine? Why Do We Need It?

Functional medicine is a form of alternative medicine described by proponents as an interaction between environment and the gastrointestinal, endocrine and immune systems (Ehrlich *et al.*, 2013). Functional medicine encompasses a treatment approach that addresses the underlying cause of a chronic illness using a system-oriented approach that involves both practitioners and patients to engage in a therapeutic partnership. Functional medicine is an advancement in the practice of medicine that better addresses the pressing needs of improving care for chronic diseases. By shifting the conventional disease-centered focus to a patient-centered approach, functional medicine addresses the medical conditions of the whole person rather than just focusing on an isolated set of symptoms (David, 2016).

Functional medicine supports the unique expression and vitality of health care and it allows practitioners to search for the root cause of an illness rather than simply treating the symptoms of the disease (<https://www.drkarafitzgerald.com/about/functional-medicine/>). For example, depression can be caused by multiple factors, including inflammation. Similarly, inflammation can lead to a number of medical conditions, including depression. In this case, precise treatment of each cause depends upon the individual's genes, environment and lifestyle. Treatment based on an isolated set of symptoms for depression without treating the root cause of the illness will not have long lasting benefits beyond the suppression of symptoms. Since our modern society is experiencing a drastic increase in the number of chronic diseases every year and our acute medical care approach lacks the proper tools for preventing and treating complex chronic diseases, it is vital that active steps should be taken to implement functional medicine and to improve a patient's health. It also can reduce medical costs.

How is Functional Medicine Different?

Functional medicine is different from conventional medicine as it involves detailed investigation of the origin, prevention and treatment of complex chronic diseases. The hallmark of functional medicine includes patient-centered care, an integrative science-based health care approach, and integration of best medical practices (Maizes *et al.*, 2009; <http://www.eatwelldaily.com/new-page-56/>). In patient-centered care, practitioners listen to the patient's complete medical history and tailor treatments based on an individual's unique needs (Reynolds 2009). The focus of functional medicine in the perspective of an integrative science-based healthcare approach is to look into the unique genetic makeup of patients along with internal (mind, body and spirit) and external (physical and social environment) factors that affect the total functioning of an individual's body to cause illness. Furthermore, functional medicine integrates traditional western medical practices and focuses on prevention of chronic diseases through balanced nutrition, diet and exercise. It also involves prescriptions of drugs/botanical medicines and the use of stress-management techniques (Rao, 2015) Thus, functional medicine offers a powerful alternative operating system and clinical model for the diagnosis, treatment and prevention of chronic diseases. This would replace the ineffective acute-care model and brings new hope to disease sufferers.

Allopathic vs Functional Medicine

Allopathic medicine refers to modern scientific systems of medicine that make use of pharmacologically active agents or physical interventions to treat or suppress symptoms of diseases or conditions. Allopathic medicine is absolutely beneficial for acute care and life-saving emergency care. If a person has a heart attack, bone fracture, suffers from wounds/infections or urgently needs surgical removal of a cancerous tumor, allopathic medicine is the best option. Allopathic medicine has excellent imaging and diagnostic technology that can save the lives of patients quickly with appropriate care. The major disadvantage of allopathic medicine is that it ignores the question "why." For example, if a person goes to the doctor for heartburn, the doctor can immediately prescribe antacid without wondering why the patient developed heartburn in the first place. Is an antacid going to permanently cure the heartburn? The answer to this question is no. Similarly, if a person has an infection or wound, will the band-aid ultimately fix this problem? No. A band-aid does not cure infection or a wound, but only controls the outer manifestation. The other potential issue with allopathic medicine is that most drugs prescribed by physicians have side effects that can disrupt body homeostasis and lead to severe health complications (Van Rooyen *et al.*, 2015). To overcome these issues, some physicians are now practicing functional medicine to treat imbalances in the autonomic control systems of an individual. Functional medicine therefore is personalized rather than based on treatment protocol for a particular symptom or disease. In functional medicine the main cause of diseases can be traced to problems in endocrine, digestive, hormonal and immune systems that cause chronic stress to our bodies. Once there is an imbalance or problem in any of the biological pathways, compensations occur in other biological pathways in order to resolve the problem. These compensations cause changes to other pathways creating a "cascading effect;" and eventually, over many years if balance is not restored, can create minor aggravating symptoms that turn into full-blown diseases. Uncovering the imbalances in homeostasis early enough would therefore likely prevent disease.

Integrative Medicine vs. Functional Medicine

In recent years various forms of alternative medicine, such as functional medicine and integrative medicine, have been gaining increasing attention. It is believed that both functional and integrative medicine are considered as the future of medicine, as these approaches use holistic ways of treating patients rather than just concentrating on an isolated set of symptoms for diseases (Bland, 2015). Although both disciplines share similarities, there are certain factors that make each approach unique.

Integrative medicine is a healing-oriented approach that takes account of all aspects of life, including lifestyle habits of patients. Integrative medicine practitioners believe that many chronic diseases are the results of poor life style choices. In the integrative approach, a patient's mind, spirit, community and body are taken into consideration to enhance healing and well-being. Integrative medicine uses a combination of modern healthcare practices to diagnose and treat patients suffering with chronic diseases. The practice of integrative medicine includes treatments such as acupuncture, yoga and massage. It also uses effective interventions that are more natural and less invasive to patients (Sierpina & Dalen, 2013).

Alternatively, in the functional medicine approach, each patient is considered as distinct and unique. Similar to integrative medicine, functional medicine treats the whole individual

rather than just the disease. In functional medicine, an individual's genetic and environmental details are obtained thus providing in-depth knowledge of the patient's health status (Bland, 2015). Functional medicine has become more popular, even with some leaders promoting the opening of an Institute of Functional Medicine (<https://www.ifm.org/find-a-practitioner/>) that would help patients to locate functional medicine practitioners anywhere in the world. Thus, functional medicine, without doubt, holds the future of medicine.

Integrating Functional Medicine with Traditional Chinese Medicine

Traditional Chinese medicine (TCM) is a form of Eastern medicine developed over more than 2,500 years of Chinese medical practice. The TCM approach originated in China thousands of years ago, but still it is practiced in many of parts of China along with modern medicine. TCM practitioners use acupuncture, herbs, diet, cupping and qigong to treat complex health conditions.

TCM is based on two theories: The first theory maintains that all the body's organs are mutually supporting and interconnected with each other. Therefore, in order to maintain a healthier life, an individual's organs and their functions should be in balance. This balance is maintained, in part, by harmonizing yin and yang, two opposing but complementary energies thought to affect all of an individual's life. The second theory of TCM says that the vital energy (called "qi" or "chi") flows throughout the body through certain pathways (or "meridians"). According to this theory, diseases or health conditions may arise when the flow of qi is blocked, weak or excessive. Restoring the qi flow imbalance is considered to be essential for balancing yin and yang and, in turn, achieving the healthy functioning of the body. For example, it was believed that acupuncture restores healthy circulation of qi, which flows in certain channels or meridians, just as blood flows in the blood vessels, thereby restoring health.

To date, there have been only a few clinical trials suggesting that TCM can treat disease, so it is highly advisable not to self-treat or use it in place of standard care (Fung & Linn *et al.*, 2015). It is always important for patients to consult their physicians to weigh the pros and cons before proceeding with TCM therapy. However, TCM has more things to offer therapeutically than the nutritional approach of functional medicine alone. Therefore, integrating functional medicine with a TCM approach could offer an effective and powerful line of therapy for addressing modern illnesses.

The Benefits of Functional Medicine

Functional medicine offers an immeasurable value in treating a multitude of health condition. Patients with a wide variety of chronic conditions can benefit from the functional medicine approach. This approach provides an alternative protocol, particularly for low- or middle-income people who cannot afford surgery or pharmaceuticals. It establishes an expanded view of the human body by providing a scientific basis for understanding mind-body connections. It also enables practitioners to develop new approaches to patient evaluation and diagnosis using additional tools of investigation in order to provide a holistic view of the person. Finally, functional medicine is a refined model of modern medicine that creates a unique environment for healing patients based on the full potential of the human being rather

than focusing only on specific symptoms or diseases (David, 2016). Functional medicine also acknowledges the biochemical individuality of each human being, based on concepts of genetic and environmental uniqueness. The other benefits of functional medicine include working with complex chronic health conditions, supporting wellness, personalized treatment to specific health needs, minimizing side effects, emphasis on doctor-patient relationship and safety (Ross, 2009). Thus, functional medicine is true healthcare with tremendous benefits that offers patients a much better approach to improve health and reduce healthcare costs.

Functional Medicine as a Clinician's Tool Box in Therapeutics

Functional medicine physicians are trained to evaluate the major underlying causes for complex, chronic illness and to apply appropriate therapeutic strategies that involve diverse tools such as nutrition, diet and exercise both to treat and manage chronic illnesses in patients. It provides care that is patient-centered, personalized, and healing-oriented. It emphasizes therapeutic approaches or relationships to promote human health as a positive vitality, and beyond just concentrating on the symptoms of diseases. In functional medicine, a comprehensive treatment plan is formulated by identifying clinical imbalances through patient history, physical examination and diagnostic testing. This provides deeper insights into understanding the origin, prevention and treatment of complex chronic diseases. Functional medicine considers multiple factors for formulating a treatment plan, which includes genetic makeup (genes), environmental inputs (diet, exercise, environmental toxicants) and mind-body elements (psychological, spiritual and social factors). Recent advances in functional medicine are expanding the clinician's therapeutic tool box. These advances include more efficient approaches that utilize combinations of therapeutic drugs, nutritional supplements, botanical medicines, therapeutic diets and detoxification programs along with changes in lifestyle, exercise and stress-management techniques.

Conclusion

Our society is continuously experiencing a sharp increase in the number of people who suffer from complex chronic diseases such as diabetes, heart disease, cancer, mental illness and autoimmune disorders. Today's healthcare system is in trouble as it applies a limited medical management model or paradigm that is less successful for the holistic treatment of chronic health problems. If a person is suffering with chronic diseases, he or she certainly seeks a physician to secure all of the life-acting resources of modern medicine such as lifesaving technology, surgery and antibiotics. However, the immediate recourse only to drugs, surgery and other acute care treatments very often does not succeed in the fullest resolution of chronic diseases. In this context, the approach of functional medicine offers a most profound and effective way to treat patients, particularly those with chronic health issues. Clearly, implementing functional medicine in medical practice would improve patient health and help to reduce the financial pressure on the healthcare system.

References

- Bland, J. (2015). Functional medicine: an operating system for integrative medicine. *Integrative Medicine: A Clinician's Journal*, 14(5), 18.
- David, G. (2016). Functional medicine: The ultimate misnomer in the world of integrative medicine". *Science Based Medicine*.
- Diederichs, C., Berger, K., & Bartels, D. B. (2010). The measurement of multiple chronic diseases—a systematic review on existing multimorbidity indices. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*, 66(3), 301-311.
- Ehrlich, G., Callender, T., & Gaster, B. (2013). Integrative medicine at academic health centers: a survey of clinicians' educational backgrounds and practices. *Family medicine*, 45(5), 330-334.
- Fung, F. Y., & Linn, Y. C. (2015). Developing traditional Chinese medicine in the era of evidence-based medicine: current evidences and challenges. *Evidence-Based Complementary and Alternative Medicine*, 2015.
- Gerteis, J., Izrael, D., Deitz, D., LeRoy, L., Ricciardi, R., Miller, T., & Basu, J. (2014). Multiple chronic conditions chartbook. *Rockville, MD: Agency for Healthcare Research and Quality*.
- Griswold, M. G., Fullman, N., Hawley, C., Arian, N., Zimsen, S. R., Tymeson, H. D., ... & Abate, K. H. (2018). Alcohol use and burden for 195 countries and territories, 1990–2016: a systematic analysis for the Global Burden of Disease Study 2016. *The Lancet*, 392(10152), 1015-1035.
- Maizes, V., Rakel, D., & Niemic, C. (2009). Integrative medicine and patient-centered care. *Explore: The Journal of Science and Healing*, 5(5), 277-289.
- McPhail, S. M. (2016). Multimorbidity in chronic disease: impact on health care resources and costs. *Risk management and healthcare policy*, 9, 143.
- Nabel, E. G., Stevens, S., & Smith, R. (2009). Combating chronic disease in developing countries. *The Lancet*, 373(9680), 2004-2006.
- Non-communicable diseases. Fact sheet. World Health Organization. January 2015. Retrieved April 5, 2016.
- Rao, G. H. (2015). Integrative approach to health: Challenges and opportunities. *Journal of Ayurveda and integrative medicine*, 6(3), 215.
- Reynolds, A. (2009). Patient-centered care. *Radiologic Technology*, 81(2), 133-147.
- Ross, C. L. (2009). Integral healthcare: the benefits and challenges of integrating complementary and alternative medicine with a conventional healthcare practice. *Integrative medicine insights*, 4, 13.

Articles

- Roy, R. (2010). Integrative medicine to tackle the problem of chronic diseases. *Journal of Ayurveda and integrative medicine*, 1(1), 18.
- Schmidt, H. (2016). Chronic disease prevention and health promotion. In *Public Health Ethics: Cases Spanning the Globe* (pp. 137-176). Springer, Cham.
- Sierpina, V. S., & Dalen, J. E. (2013). The future of integrative medicine. *The American journal of medicine*, 126(8), 661-662.
- Van Rooyen, D., Pretorius, B., Tembani, N. M., & Ten Ham, W. (2015). Allopathic and traditional health practitioners' collaboration. *curationis*, 38(2), 1-10.
- Ward, B. W. (2016). State and Regional Prevalence of Diagnosed Multiple Chronic Conditions Among Adults Aged ≥ 18 Years — United States, 2014. *MMWR. Morbidity and mortality weekly report*, 65.
- World Health Organization. (2014). Chronic diseases and their common risk factors. 2006. *Last accessed*, 4, 14-31.